

**Acta entomologica serbica, 2017, 22: 123-128**

UDC 595.792(497.11);  
595.792-169(497.11)  
DOI: 10.5281/zenodo.853154

# FINDINGS OF THE SPECIES *AULACIDEA TRAGOPOGONIS* (THOMSON) AND *TIMASPIS CICHORII* (KIEFFER) (HYMENOPTERA, CYNIPIDAE) IN SERBIA

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## Abstract

In research on the fauna of insect parasitoids of cynipid gall wasps in Serbia, galls of the cynipid gall wasp species *Aulacidea tragopogonis* (Thomson, 1877) were found on *Tragopogon dubius* Scop. (Asteraceae), while galls of the species *Timaspis cichorii* (Kieffer, 1909) were found on *Cichorium intybus* L. (Asteraceae). As these are the only findings of the indicated cynipid gall wasps in Serbia to date, they are published in the present paper. Parasitoids obtained from the collected galls of these cynipid gall wasps are also published here.

Keywords: Cynipidae, fauna, parasitoids, *Tragopogon*, *Cichorium*, Slankamen

## Introduction

*Aulacidea tragopogonis* is a univoltine cynipid gall wasp that in Europe has up to now been recorded in Sweden, Denmark, Poland, Germany, Austria, Romania, Ukraine, Russia, Great Britain, Spain and France (Melika, 2006; Mitroiu, 2013). In the stem of *Tragopogon dubius* Scop., *T. major* Jacq., *T. porrifolius* L. and *T. pratensis* L. (Asteraceae), it forms small galls that when they appear individually do not cause deformation of the stem. However, when they appear in large numbers, the galls often fuse and create a readily discernible woody excrescence up to 40 mm long. The galls mature in the fall, and this species overwinters in them in the larval stage. The following spring (in April-May) pupae appear from which imagoes hatch during May-June (Melika, 2006).

*Timaspis cichorii* is another univoltine cynipid gall wasp, one that has been recorded to date in Spain, France, Hungary, Poland, Turkmenistan, Ukraine, Trans-Caucasia and Asia Minor. Its galls are found in the stem of *Cichorium intybus* L. (Asteraceae). They are dispersed along the stem and difficult to detect because they cause no external deformation of it. In them are found ellipsoidal larval chambers measuring about 1.5 mm in diameter. The larvae overwinter in these chambers. Imagoes appear in the spring, April-July (Melika, 2006).

In investigating the fauna of insect parasitoids of cynipid gall wasps in Serbia, we found galls of the species *A. tragopogonis* and *T. cichorii*. As these are their only findings in Serbia to date (Langhoffer, 1915; Baudyš, 1928; Maksimović *et al.*, 1982; Pal, 1983a, b; Mihajlović & Marković, 2003; Glavendekić & Mihajlović, 2004; Drekić, 2006; Marković, 2014, 2015; Marković & Stojanović, 2007, 2009; Stojanović & Marković, 2016), we publish them in this paper. We also publish here the parasitoids obtained from galls of the indicated species.

## Material and Method

The species *A. tragopogonis* was obtained from galls collected from *Tragopogon dubius* Scop. on 02.10. 1999 at the locality Stari Slankamen (45°09'14.56" N, 20°13'46.74" E) and on 16.09. 2000 at the locality Stari Slankamen – Koševac (45°09'54.96 N, 20°11'55.48" E), while the species *T. cichorii* was obtained from galls collected from *Cichorium intybus* L. on 07.03.1999 at the locality Boljevci – Crni Lug (44°42'40.07" N, 20°12'31.02" E) (leg. A. Stojanović). In laboratory, all the collected galls were put into photoelectors. The photoelectors were inspected daily during the time of appearance of imagoes of the indicated species and their parasitoids. The outflying imagoes were collected, killed with ether, prepared and identified (by A. Stojanović), after which they were deposited in the insect collection of the Natural History Museum in Belgrade (collections numbers 595.791 and 595.792.1), where they now reside.

Identification of imagoes of *A. tragopogonis* and *T. cichorii* was performed using papers of Kierych (1971), Zerova *et al.* (1988), Nieves-Aldrey (1994), Melika & Karimpour (2012) and Melika (2006). Imagoes of the obtained parasitoids were identified using papers of Graham (1969, 1991), Bouček (1977), Zerova (1978, 1995), Kalina (1981), Askew & Nieves-Aldrey (1988, 2000), Grissell (1995), Dzhankmen (1999), Stojanova (1999), Andriescu & Mitroiu (2004), Askew *et al.* (2004, 2007), Xiao *et al.* (2004), Zerova *et al.* (2008), Zerova & Seryogina (2009), Askew (2011) and Klymenko (2011).

## Results and Discussion

Galls collected from *T. dubius* yielded 91 imagoes of *A. tragopogonis* (56 ♀♀, 35 ♂♂), in addition to 108 imagoes of six parasitoid species: *Eupelmus vesicularis* (Retzius, 1783) (5 ♀♀, 2 ♂♂) (Chalcidoidea, Eupelmidae); *Eurytoma centaureae* Claridge, 1960 (1 ♀ 2 ♂♂), *E. hybrida* Zerova, 1978 (26 ♀♀, 26 ♂♂) and *E. jaceae* Mayr, 1878 (10 ♀♀, 6 ♂♂) (Chalcidoidea, Eurytomidae); *Pteromalus hieracii* Thomson, 1878 (1 ♂) (Chalcidoidea, Pteromalidae); and *Adontomerus impolitus* (Askew & Nieves-Aldrey, 1988) (29 ♀♀) (Chalcidoidea, Torymidae). Table I presents the number of imagoes of *A. tragopogonis* and its parasitoids obtained from galls collected at two localities.

Galls collected from *C. intybus* yielded 212 females of *T. cichorii* and 245 imagoes of nine parasitoid species: *Aprostocetus* sp. (1 ♀) (Chalcidoidea, Eulophidae); *E. vesicularis* (12 ♀♀) and *Baryscapus papaveris* Graham, 1991 (11 ♀♀, 4 ♂♂) (Chalcidoidea, Eupelmidae); *Eurytoma aspila* (Walker, 1836) (94 ♀♀, 79 ♂♂), *E. centaureae* (2 ♀♀, 2 ♂♂) and *E. jaceae* (1 ♂) (Chalcidoidea, Eurytomidae); *Stinoplus cichorii* Askew, 2011 (2 ♀♀) and *Homoporus subniger* (Walker, 1835) (22 ♀♀, 14 ♂♂) (Chalcidoidea, Pteromalidae); and *A. impolitus* (1 ♀).

Table I. Number of imagoes of *A. tragopogonis* and its parasitoids obtained at two localities.

Species	Locality			
	Stari Slankamen		Stari Slankamen Koševac	
Hymenoptera	♀♀	♂♂	♀♀	♂♂
<b>Cynipidae</b>				
<i>Aulacidea tragopogonis</i>	25	8	31	27
<b>Eupelmidae</b>				
<i>Eupelmus vesicularis</i> (Retzius, 1783)	-	-	5	2
<b>Eurytomidae</b>				
<i>Eurytoma centaureae</i> Claridge, 1960	1	2	-	-
<i>E. hybrida</i> Zerova, 1978	8	6	18	20
<i>E. jaceae</i> Mayr, 1878	-	-	10	6
<b>Pteromalidae</b>				
<i>Pteromalus hieracii</i> Thomson, 1878	-	1	-	-
<b>Torymidae</b>				
<i>Adontomerus impolitus</i> (Askew & Nieves-Aldrey, 1988)	11	-	18	-

According to Melika (2006) and Mitroiu (2013), the cynipid gall wasps *A. tragopogonis* and *T. cichorii* have rarely been recorded before now on the Balkan Peninsula. It can be freely asserted that they were to be expected in Serbia because they have already been found in some neighbouring countries (*A. tragopogonis* in Romania, *T. cichorii* in Hungary) (Melika, 2006).

A large number of parasitoids were found to be associated with *A. tragopogonis* and *T. cichorii* in Serbia. Those are polyphagous species of which some have not been recorded up to now in Serbia (*A. impolitus*, *E. centaureae*, *E. hybrida*, *E. jaceae*, *P. hieracii*, *S. cichorii*) (Bouček, 1977; Noyes, 2016; Stojanović & Marković, 2016). Moreover, they also include species that have not been mentioned before as being associated with *A. tragopogonis* and *T. cichorii* (*E. centaureae* for *A. tragopogonis*; and *A. impolitus*, *B. papavaeris*, *E. centaureae* and *E. jaceae* for *T. cichorii*) (Askew *et al.*, 2006; Noyes, 2016).

Among the obtained parasitoids of *T. cichorii* in Serbia is the species *S. cichorii*. According to Noyes (2016), it was previously recorded only in Spain.

The parasitoids obtained from galls of *A. tragopogonis* and *T. cichorii* in the course of the present investigations probably are not the only parasitoids associated with them in Serbia. They were obtained from a small number of samples. For this reason, it is possible that other parasitoids will be discovered when new samples of the galls of these species are collected.

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НАЛАЗИ ВРСТА *AULACIDEA TRAGOPOGONIS* (THOMSON)  
И *TIMASPIS CICHORII* (KIEFFER)  
(HYMENOPTERA, CYNIPIDAE) У СРБИЈИ

АЛЕКСАНДАР СТОЈАНОВИЋ И ЧЕДОМИР МАРКОВИЋ

Извод

Истражујући фауну инсеката паразитоида галиколних Cynipidae у Србији на *Tragopogon dubius* Scop. (Asteraceae) пронађене су гале галиколне Cynipidae *Aulacidea tragopogonis* (Thomson, 1877) а на *Cichorium intybus* L. (Asteraceae) гале галиколне Cynipidae *Timaspis cichorii* (Kieffer, 1909). Пошто ове две галиколне Cynipidae у Србији до сада нису констатоване у раду су наведени локалитети на којима су оне први пут пронађене. Такође, публиковани су и паразитоиди који су добијени из њихових гала.

Received: January 1st, 2017.

Accepted: August 2nd, 2017.